NAME Key DATE _____ PERIOD ____

6-1 Practice

Proportions

1. **NUTRITION** One ounce of cheddar cheese contains 9 grams of fat. Six of the grams of fat are saturated fats. Find the ratio of saturated fats to total fat in an ounce of cheese.

2:3

2. **FARMING** The ratio of goats to sheep at a university research farm is 4:7. The number of sheep at the farm is 28. What is the number of goats?

$\frac{4}{7} = \frac{x}{28}$ $x = 16$

3. **ART** Edward Hopper's oil on canvas painting *Nighthawks* has a length of 60 inches and a width of 30 inches. A print of the original has a length of 2.5 inches. What is the width of the print?

$\frac{60}{30} = \frac{2.5}{w}$ $w = 1.25$ in

Solve each proportion.

4. $\frac{5}{8} = \frac{x}{12}$ 7.5

5. $\frac{x}{1.12} = \frac{1}{5}$ .224

6. $\frac{6x}{27} = \frac{4}{3}$ 6

7. $\frac{x+2}{8} = \frac{8}{9}$ $3x+6 = 8$, $3x = 2$, $x = \frac{2}{3}$

8. $\frac{3x-5}{4} = \frac{-5}{7}$ $21x - 35 = -20$, $21x = 15$, $x = \frac{15}{21} = \frac{5}{7}$

9. $\frac{x-2}{4} = \frac{x+4}{2}$ $x - 2 = 2x + 8$, $-10 = x$

Find the measures of the sides of each triangle.

10. The ratio of the measures of the sides of a triangle is 3:4:6, and its perimeter is 104 feet.

$3x + 4x + 6x = 104$, $13x = 104$, $x = 8$ 24ft, 32ft, 48ft

11. The ratio of the measures of the sides of a triangle is 7:9:12, and its perimeter is 84 inches.

$7x + 9x + 12x = 84$, $28x = 84$, $x = 3$ 21in, 27in, 36in

12. The ratio of the measures of the sides of a triangle is 6:7:9, and its perimeter is 77 centimeters.

$6x + 7x + 9x = 77$, $22x = 77$, $x = 3.5$ 21cm, 24.5cm, 31.5cm

Find the measures of the angles in each triangle.

13. The ratio of the measures of the angles is 4:5:6.

$4x + 5x + 6x = 180$, $15x = 180$, $x = 12$ 48°, 60°, 72°

14. The ratio of the measures of the angles is 5:7:8.

$5x + 7x + 8x = 180$, $20x = 180$, $x = 9$ 45°, 63°, 72°

15. **BRIDGES** The span of the Benjamin Franklin suspension bridge in Philadelphia, Pennsylvania, is 1750 feet. A model of the bridge has a span of 42 inches. What is the ratio of the span of the model to the span of the actual Benjamin Franklin Bridge?

Convert 1750×12 $\frac{42}{21000} = \frac{1}{500}$

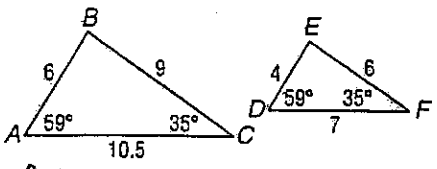
NAME _____ DATE _____ PERIOD ____

6-2 Skills Practice

Similar Polygons

Determine whether each pair of figures is similar. Justify your answer.

1.

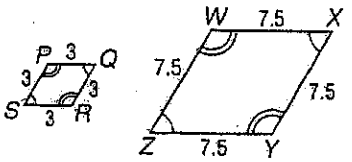


yes AA~

or SSS~ $\frac{6}{4} = \frac{9}{6} = \frac{10.5}{7}$ ✓

or SAS~

2.



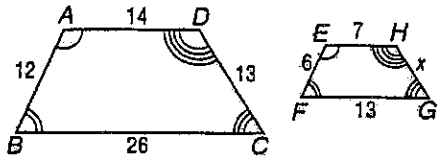
yes $\angle$s $\cong$

Sides proportional

$\frac{3}{7.5} = \frac{3}{7.5} = \frac{3}{7.5} = \frac{3}{7.5}$ ✓

Each pair of polygons is similar. Write a similarity statement, and find x, the measure(s) of the indicated side(s), and the scale factor.

3. $\overline{GH}$



ABCD ~ EFGH

S.F. 2:1

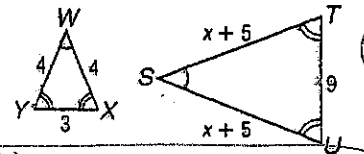
$\frac{2}{1} = \frac{13}{x}$

$2x = 13$

$x = 6.5$

$GH = 6.5$

4. $\overline{ST}$ and $\overline{SU}$



$\triangle WYX \sim \triangle SUT$ (or $\triangle STU$)

S.F. 1:3

$\frac{1}{3} = \frac{4}{x+5}$

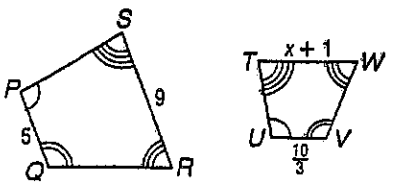
$x + 5 = 12$

$x = 7$

$ST = 12$

$SU = 12$

5. $\overline{WT}$



PQRS ~ UVWT

S.F. 3:2

$\frac{5}{10/3} = \frac{3}{10/2} = \frac{3}{2}$

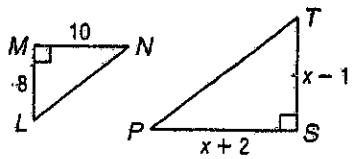
$\frac{3x}{2} = \frac{9}{x+1}$

$x + 1 = 6$

$x = 5$

$WT = 6$

6. $\overline{TS}$ and $\overline{SP}$



$\triangle MNL \sim \triangle SPT$

$\frac{4x}{x+1} = \frac{5x}{x+2}$

$4x + 8 = 5x - 5$

$13 = x$

$TS = 12$

$SP = 15$

S.F. 2:3

$\frac{8}{12} = \frac{2}{3}$

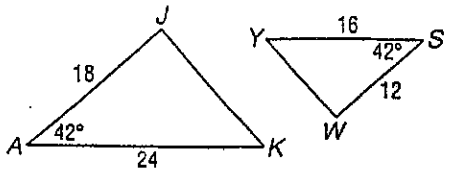
NAME _____ DATE _____ PERIOD ____

6-3 Practice

Similar Triangles

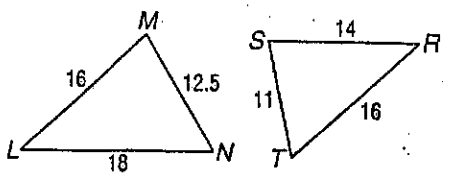
Determine whether each pair of triangles is similar. Justify your answer.

1.



$\frac{18}{12} = \frac{24}{16}$ ✓ SAS~

2.

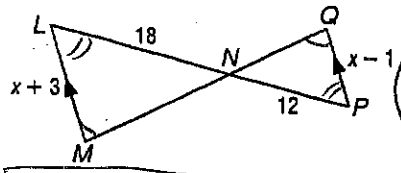


$\frac{12.5}{11} = \frac{16}{14} \neq \frac{18}{16}$ NO

1.136... 1.14

ALGEBRA Identify the similar triangles, and find x and the measures of the indicated sides.

3. $\overline{LM}$ and $\overline{QP}$



LM = 12
QP = 8

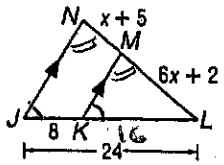
△LMN ~ △PQN

3 18 / 2 12 = x+3 / x−1

2x + 6 = 3x − 3

9 = x

4. $\overline{NL}$ and $\overline{ML}$



NL = 21
ML = 14

△KML ~ △JNL

2 16 / 3 24 = 6x+2 / 7x+7

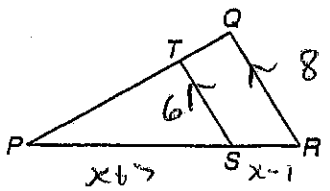
18x + 6 = 14x + 14

4x = 8

x = 2

Use the given information to find each measure.

5. If $\overline{TS} \parallel \overline{QR}$, $TS = 6$, $PS = x + 7$, $QR = 8$, and $SR = x - 1$, find PS and PR.



PS = 12
PR = 16

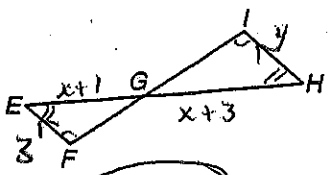
3 6 / 4 8 = x+7 / 2x+6

6x + 18 = 4x + 28

2x = 10

x = 5

6. If $\overline{EF} \parallel \overline{HI}$, $EF = 3$, $EG = x + 1$, $HI = 4$, and $HG = x + 3$, find EG and HG.



EG = 6
HG = 8

△EFG ~ △HIG

3/4 = x+1 / x+3

4x + 4 = 3x + 9

x = 5

INDIRECT MEASUREMENT For Exercises 7 and 8, use the following information.

A lighthouse casts a 128-foot shadow. A nearby lamppost that measures 5 feet 3 inches casts an 8-foot shadow.

7. Write a proportion that can be used to determine the height of the lighthouse.

$\frac{x}{128} = \frac{5\frac{1}{4}}{8}$

8. What is the height of the lighthouse? 84 ft